

FS-00534

**AMENDMENT WITH RCE**

02890034aa

Amendment dated 7/21/2005

Reply to office action mailed 04/21/2005

The following is a complete listing of all claims in the application, with an indication of the status of each:

**Listing of claims:**

1           1. (currently amended) An automated method for converting tables of data in  
2           a source database to components of a target application, the method  
3           comprising the steps:  
4                 obtaining by a computer identification of a) specified tables in said  
5           source database containing data usable in said target application, b) a target  
6           location for said target application and c) an application server being used for  
7           development of said target application at said target location  
8                 reading by a computer definitions of said specified tables from said  
9           source database; and  
10                generating by a computer from said database definitions a plurality of  
11           source code files, said source code files being generated directly in a language  
12           of said target application, each said specified table being referenced  
13           consistently across said plurality of source code files, said plurality of source  
14           code files including object classes and deployment descriptors, said specified  
15           tables being made accessible to a remote client by said target application, said  
16           target application being developed using said plurality of source code files.

1           2. (previously presented) The method of claim 1 further comprising the steps  
2           of:  
3                 providing a user interface to permit interaction with the computer  
4           application program;  
5                 including in said obtaining step identification of d) an Enterprise  
6           JAVA Bean Java Archive (EJB Jar) file;

FS-00534

**AMENDMENT WITH RCE**

02890034aa

Amendment dated 7/21/2005

Reply to office action mailed 04/21/2005

7           generating said plurality of source code files in said identified target  
8           location, said identified target location being a user-specified directory path,  
9           said application server supporting development of Enterprise JAVA Beans  
10          (EJBs) and supporting a Java Naming and Directory Interface (JNDI) to assist  
11          with said consistent table references, and said plurality of source code files  
12          comprising

13               a Data JAVA file for each specified table, a Home Interface JAVA file  
14               for each specified table, a Remote Interface JAVA file for each specified  
15               table, a Bean JAVA file for each specified table, a Primary Key JAVA file for  
16               each specified table, a Persistent JAVA file for each specified table, an  
17               Enterprise JAVA Bean Deployment Descriptor XML file, an Enterprise  
18               JAVA Bean Jar batch command file, a Vendor-Specific Deployment XML  
19               file, and a Vendor-Specific Build batch command file.

1           3. (previously presented) The method of claim 2, wherein providing a user  
2           interface further comprises the steps of:  
3               querying the database to get names of all tables related to the database,  
4               from which each of said specified tables are selected for encapsulation with an  
5               EJB; and  
6               querying the database to acquire information about fields within each  
7               of said specified tables.

1           4. (previously presented) The method of claim 2, wherein generating the  
2           Data JAVA file further comprises the steps of:  
3               generating a file with its filename equal to a table name followed by  
4               the word "Data" and file extension ".java";  
5               writing header comments indicating that a JAVA class encapsulates  
6               one row of the specified table;

FS-00534

**AMENDMENT WITH RCE**

02890034aa

Amendment dated 7/21/2005

Reply to office action mailed 04/21/2005

7 writing a JAVA package definition consistent with the user-specified  
8 directory path;  
9 writing a first JAVA statement to import a java.io.Serializable class;  
10 writing a JAVA class definition with a class name equal to its  
11 filename;  
12 writing a second JAVA statement indicating that the class implements  
13 the Serializable interface;  
14 writing a corresponding attribute definition for each one of a plurality  
15 of fields in the specified table;  
16 ensuring that a JAVA data type of each one of a plurality of attributes  
17 is compatible with a database data type of its corresponding field;  
18 ensuring that a name of each one of the plurality of attributes is  
19 identical to the name of its corresponding field;  
20 writing a first JAVA public method to get a value of each one of the  
21 plurality of attributes;  
22 writing a second JAVA public method to set the value of each one of  
23 the plurality of attributes; and  
24 writing a third JAVA public method named "toString" to return a  
25 string representing a Data class.

1 5. (previously presented) The method of claim 2, wherein generating the  
2 Home Interface JAVA file further comprises the steps of:  
3 generating a file with filename equal to a table name followed by the  
4 word "Home" and file extension "java";  
5 writing header comments indicating that a JAVA class is the Home  
6 Interface for the Bean encapsulating the specified table;  
7 writing a JAVA package definition consistent with the user-specified  
8 directory path;

FS-00534

**AMENDMENT WITH RCE**

02890034aa

Amendment dated 7/21/2005

Reply to office action mailed 04/21/2005

9 writing a first JAVA statement to import the following classes:  
10 javax.ejb.EJBHome; javax.ejb.FinderException; javax.ejb.CreateException;  
11 java.rmi.RemoteException; java.util.Collection;  
12 writing a JAVA interface definition with an interface name equal to  
13 the filename;  
14 writing a second JAVA statement indicating that the class extends the  
15 EJBHome interface;  
16 writing a first JAVA method signature named "create" which takes as  
17 parameters the attributes of Data class and returns an object of Remote class;  
18 writing a second JAVA method signature named "create" which takes  
19 as a parameter an object of Data class and returns an object of Remote class;  
20 and  
21 writing a third JAVA method signature named "findByPrimaryKey"  
22 which takes as a parameter an object of PrimaryKey class and returns an  
23 object of Remote class wherein writing the JAVA method signature named  
24 "findByPrimaryKey" has one primary key and the computer application  
25 program makes the parameter its corresponding attribute of Data class.

1 6. (previously presented) The method of claim 2, wherein generating the  
2 Remote Interface JAVA file further comprises the steps of:  
3 generating a file with its filename equal to the table name followed by  
4 the word "Remote" and file extension "java";  
5 writing header comments indicating that this JAVA class is the  
6 Remote interface for the Bean encapsulating the specified table;  
7 writing a JAVA package definition consistent with the user-specified  
8 directory path;  
9 writing a first JAVA statement to import the following classes:  
10 javax.ejb.EJBObject; java.rmi.RemoteException;

FS-00534

**AMENDMENT WITH RCE**

02890034aa

Amendment dated 7/21/2005

Reply to office action mailed 04/21/2005

11 writing a JAVA interface definition with its interface name equal to  
12 the filename;  
13 writing a second JAVA statement indicating that the class extends the  
14 EJBObject interface;  
15 writing a first JAVA public method signature to get a value of each  
16 attribute and wherein the signature indicates that the method may throw a  
17 Remote Exception; and  
18 writing a second JAVA public method to set the value of each attribute  
19 signature and wherein the signature shall indicate that the method may throw  
20 a Remote Exception.

1 7. (previously presented) The method of claim 2, wherein generating the  
2 Bean JAVA file further comprises the steps of:  
3 generating a file with its filename equal to its table name followed by  
4 the word "Bean" and file extension ".java";  
5 writing header comments indicating that the JAVA class is an EJB  
6 which encapsulates one row of the specified table;  
7 writing a JAVA package definition consistent with the user-specified  
8 directory path;  
9 writing a first JAVA statement to import the following classes:  
10 java.rmi.RemoteException; all classes in the javax.ejb package; all classes in  
11 the java.util package;  
12 writing a JAVA class definition with its class name equal to the  
13 filename;  
14 writing a second JAVA statement indicating that the class implements  
15 the EntityBean interface;  
16 writing an attribute definition for one attribute named "theContext" of  
17 type "EntityContext";

FS-00534

**AMENDMENT WITH RCE**

02890034aa

Amendment dated 7/21/2005

Reply to office action mailed 04/21/2005

18 writing, for each field in the specified table, its corresponding attribute  
19 definition;  
20 ensuring that the JAVA data type of each attribute is compatible with  
21 the database data type of its corresponding field;  
22 ensuring that each attribute is identical to the lower-case name of its  
23 corresponding field;  
24 writing a first JAVA public method to get the value of each attribute;  
25 writing a second JAVA public method to set the value of each  
26 attribute;  
27 writing a third JAVA public method named "setAll" which has an  
28 object of Data class as parameter and can throw a Remote Exception and  
29 wherein each attribute of Bean class is set to the value of its corresponding  
30 Data attribute;  
31 writing a fourth JAVA public method named "getAll" which returns an  
32 object of Data class and can throw a Remote Exception;  
33 writing a fifth JAVA public method named "ejbCreate" with attributes  
34 of Data class as parameters and a signature of this method says it returns an  
35 object of type "String" but the body of the method must return "null" and this  
36 method can throw a Create Exception and a Remote Exception;  
37 writing a sixth JAVA public method named "ejbPostCreate" with  
38 attributes of Data class as parameters and the signature of this method says it  
39 returns an object of type "String" but the body of the method must return  
40 "null" and this method can throw a Create Exception and a Remote Exception;  
41 writing a seventh JAVA public method named "ejbPostCreate" with an  
42 object of Data class as the parameter and the signature of this method says it  
43 returns an object of type "String" but the body of the method must return  
44 "null" and this method can throw a Create Exception and a Remote Exception;

FS-00534

**AMENDMENT WITH RCE**

02890034aa

Amendment dated 7/21/2005

Reply to office action mailed 04/21/2005

45                writing an eighth JAVA public method named "ejbLoad" which can  
46                throw an EJB Exception or a Remote Exception and the body of this method  
47                may be empty;  
48                writing a ninth JAVA public method named "ejbStore" which can  
49                throw an EJB exception or a Remote exception and the body of this method  
50                may be empty;  
51                writing a tenth JAVA public method named "ejbActivate" which can  
52                throw an EJB Exception or a Remote Exception and the body of this method  
53                can be empty;  
54                writing an eleventh JAVA public method named "ejbPassivate" which  
55                can throw an EJB Exception or a Remote Exception and the body of this  
56                method can be empty;  
57                writing a twelfth JAVA public method named "ejbRemove" which can  
58                throw an EJB Exception or a Remote Exception and the body of this method  
59                can be empty;  
60                writing a thirteenth JAVA public method named "setEntityContext"  
61                which can throw an EJB exception or a Remote Exception and the parameter  
62                for this method is an object of type EntityContext and is used to set  
63                theContext;  
64                writing a fourteenth JAVA public method named "unsetEntityContext"  
65                which can throw an EJB Exception or a Remote Exception and this method  
66                sets theContext to "null"; and  
67                writing a fifteenth JAVA public method named "toString" to return a  
68                string representing the Bean class.

1                8. (previously presented) The method of claim 2, wherein generating the  
2                Primary Key JAVA file further comprises the steps of:

FS-00534

**AMENDMENT WITH RCE**

02890034aa

Amendment dated 7/21/2005

Reply to office action mailed 04/21/2005

3           generating a file with at least two primary key fields such that its  
4           filename is made equal to its table name followed by the word "PrimaryKey"  
5           and file extension ".java";  
6           writing header comments indicating that this JAVA class encapsulates  
7           the Primary Key of the specified table;  
8           writing a JAVA package definition consistent with the user-specified  
9           directory path;  
10          writing a first JAVA statement to import the java.io.Serializable class;  
11          writing a JAVA class definition with the class name equal to its  
12          filename;  
13          writing a second JAVA statement indicating that its class implements  
14          the Serializable interface;  
15          writing a corresponding attribute definition for each primary key field;  
16          ensuring that the JAVA data type of each attribute is compatible with  
17          the database data type of its corresponding field;  
18          ensuring that each attribute is identical to the lower case name of its  
19          corresponding field;  
20          writing a first JAVA public method to get the value of each attribute;  
21          writing a second JAVA public method to set the value of each  
22          attribute;  
23          writing a third JAVA public method named "equals" which returns a  
24          boolean value and the parameter to this method is an object of the Object class  
25          and returns "true" if the parameter is an instance of the Primary Key class and  
26          if the parameter's attributes have values equal to the values of the attributes of  
27          this object; and  
28          writing a fourth JAVA public method named "hashCode" which  
29          returns an integer value and this method forms a String of the attribute values  
30          and returns a hash code of that String.



FS-00534

**AMENDMENT WITH RCE**

02890034aa

Amendment dated 7/21/2005

Reply to office action mailed 04/21/2005

1           9. (previously presented) The method of claim 2, wherein generating the  
2           Persistent JAVA file further comprises the steps of:  
3                 generating a file with filename equal to the table name followed by the  
4                 word "Persistent" and file extension ".java";  
5                 writing header comments indicating that this JAVA class encapsulates  
6                 one row of the specified table and this client side class can be passed to the  
7                 server for execution;  
8                 writing a JAVA package definition consistent with the user specified  
9                 directory path;  
10                writing a first JAVA statement to import the following classes  
11                javax.naming.InitialContext; javax.naming.NamingException;  
12                javax.rmi.PortableRemoteObject; java.sql.Connection; java.io.Serializable; all  
13                classes of the utility package com.lmco.util;  
14                writing a JAVA class definition with the class name equal to the  
15                filename;  
16                writing a second JAVA statement indicating that the class extends its  
17                corresponding Data class;  
18                writing a third JAVA statement indicating that the class implements  
19                the Serializable interface and the PersistentObject interface;  
20                writing a first JAVA public method to construct an object of this class  
21                without any parameters;  
22                writing a second JAVA public method to construct an object of this  
23                class with the attributes of the Data class as parameters;  
24                writing a third JAVA public method to construct an object of this class  
25                with an object of the Data class as parameters;  
26                writing a fourth JAVA public method named "create" which returns a  
27                boolean and the body of this method provides a JAVA try-and-catch block to

FS-00534

**AMENDMENT WITH RCE**

02890034aa

Amendment dated 7/21/2005

Reply to office action mailed 04/21/2005

28        invoke the "create" method of the Home interface with the attributes of this  
29        class as parameters and if an exception occurs, the result is false or otherwise  
30        the result is true;

31                writing a fifth JAVA public method named "read" which returns a  
32        boolean and the body of this method provides a JAVA try-and-catch block to  
33        invoke the "findByPrimaryKey" method of the Home interface with the  
34        Primary Key class as parameter and if an exception occurs, the result is false  
35        or otherwise, the result is true and the attributes of this class are set to the  
36        values in the Remote interface returned by the "findByPrimaryKey" method;

37                writing a sixth JAVA public method named "update" which returns a  
38        boolean and the body of this method provides a JAVA try-and-catch block to  
39        invoke the "findByPrimaryKey" method of the Home interface, with the  
40        primary key class as parameter and if an exception occurs, the result is false  
41        or otherwise, the result is true and the attributes of the Remote interface are  
42        set to the values of the attributes in this class;

43                writing an seventh JAVA public method named "delete" which returns  
44        a boolean and the body of this method provides a JAVA try-and-catch block  
45        to invoke the "remove" method of the Home interface with the Primary Key  
46        class as parameter and if an exception occurs, the result is false or otherwise  
47        the result is true; and

48                writing a JAVA protected method named "getHome" to return an  
49        object of the Home class and the body of this method providing a JAVA try-  
50        and-catch block to use an object of type InitialContext to look up in the JNDI  
51        a\_name, which JNDI name is equal to the name of the specified table.

1        10. (previously presented) The method of claim 2, wherein generating the  
2        EJB Deployment Descriptor XML file further comprises the steps of:

FS-00534

**AMENDMENT WITH RCE**

02890034aa

Amendment dated 7/21/2005

Reply to office action mailed 04/21/2005

3           generating a file with filename "ejb-jar.xml" and located in a folder  
4           named META-INF one directory deep within the user-specified target  
5           directory path;  
6           writing an XML header statement for documents of type "ejb-jar";  
7           writing a first tag <ejb> to begin the document;  
8           writing a second tag <description> to begin a description;  
9           writing the description of a jar file which includes the package name  
10          and the identified EJB jar filename;  
11          writing a third tag </description> to end the description;  
12          writing a fourth tag <enterprise-beans> to begin a list of EJB's;  
13          writing a fifth tag <entity> to begin a definition of its corresponding  
14          entity EJB;  
15          writing a sixth tag <description> to begin the description of the EJB;  
16          writing a description of the EJB including the name of its  
17          corresponding specified table;  
18          writing a seventh tag </description> to end the description;  
19          writing an eighth tag <ejb-name> to begin the name of the EJB;  
20          writing the name of its corresponding specified table;  
21          writing a ninth tag </ejb-name> to end the name of the EJB;  
22          writing a tenth tag <home> to begin a home of the EJB;  
23          writing a fully-qualified-name of its corresponding Home class;  
24          writing an eleventh tag </home> to end the home of the EJB;  
25          writing a twelfth tag <remote> to begin a remote interface of the EJB;  
26          writing a fully-qualified-name of its corresponding Remote class;  
27          writing a thirteenth tag </remote> to end the remote of the EJB;  
28          writing a fourteenth tag <ejb-class> to begin a bean class of the EJB;  
29          writing the fully-qualified-name of its corresponding Bean class;  
30          writing a fifteenth tag </ejb-class> to end the bean class of the EJB;

FS-00534

**AMENDMENT WITH RCE**

02890034aa

Amendment dated 7/21/2005

Reply to office action mailed 04/21/2005

31 specifying container-maintained persistence with the statement  
32 <persistence-type>Container</persistence-type>;  
33 writing a sixteenth tag <prim-key-class> to begin the primary key  
34 class of the EJB;  
35 writing the fully-qualified-name of its corresponding PrimaryKey  
36 class;  
37 writing a seventeenth tag </prim-key-class> to end the primary key  
38 class of the EJB;  
39 specifying the EJB as not re-entrant by writing  
40 <reentrant>False</reentrant>;  
41 beginning each field of the specified table with <cmp-field><field-  
42 name>;  
43 writing each field of the specified table;  
44 ending each field of the specified table with </field name></cmp-  
45 field>;  
46 if the specified table has only one primary key field, writing the  
47 primary key field as <primkey-field> followed by the field name followed by  
48 </primkey-field>;  
49 writing an eighteenth tag </entity> to end a description of its  
50 corresponding entity EJB for each specified table;  
51 writing a nineteenth tag <assembly-descriptor> to begin the assembly  
52 descriptor;  
53 writing a twentieth or more tags defining a default security role;  
54 providing default permission to all methods of all EJB's;  
55 specifying container-managed transactions for all methods of each  
56 EJB;  
57 writing a twenty-first or greater tag <assembly-descriptor> to end  
58 assembly;

FS-00534

**AMENDMENT WITH RCE**

02890034aa

Amendment dated 7/21/2005

Reply to office action mailed 04/21/2005

59 writing a twenty-second or greater tag </enterprise-beans> to end the  
60 list of EJB's; and  
61 writing a twenty-third or greater tag </ejb> to end the document.

1 11. (previously presented) The method of claim 2, wherein generating the  
2 EJB Jar batch command file further comprises the steps of:  
3 generating a file with filename set to the identified name of the Jar file  
4 where the file extension on MS Windows-based systems is "bat";  
5 writing a command to compile each generated Java file;  
6 writing a command to put the ejb-jar.xml file into one Jar file; and  
7 for each specified table, writing a command to put all of generated  
8 JAVA classes into the Jar file.

1 12. (previously presented) The method of claim 2, wherein generating the  
2 Vendor-Specific Deployment XML file further comprises the steps of:  
3 generating a file with filename indicating both the vendor and the  
4 identified name of the EJB Jar file;  
5 generating one or more XML tags according to vendor specifications  
6 for a target Application Server and for which the details will vary with the  
7 Vendor;  
8 generating one or more XML tags to specify a JNDI name for the EJB  
9 corresponding to each specified table and the JNDI name is the same as its  
10 specified table name; and  
11 generating one or more XML tags to specify mapping of each EJB  
12 attribute to its field in the specified database table.

1 13. (previously presented) The method of claim 2, wherein generating the  
2 Vendor-Specific Build batch command file further comprises the steps of:

FS-00534

**AMENDMENT WITH RCE**

02890034aa

Amendment dated 7/21/2005

Reply to office action mailed 04/21/2005

- 3                   generating a file with its filename indicating both a vendor and the
- 4           word "command" and wherein the file extension on MS Windows-based
- 5           systems is "bat";
- 6                   generating vendor-specific commands to import and deploy a Jar file
- 7           according to the Vendor-Specific Deployment file.